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DEPARTMENT OF THE ARMY
UNITED STATES ARMY AVIATION TEST BOARD
Fort Rucker, Alabama 36360

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STEBG-TD-M

JUL 22 1969

SUBJECT: Letter Report of Initial Production Test of Armament Subsystem, Helicopter, 7.62mm, XM41, ~~USATECOM~~ Project No. 4-5-1534-16

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⑪ USATECOM-4-5-1534-16

1. REFERENCES

- a. Plan of Test, US Army Weapons Command, subject: "Quality Assurance Initial Production Test Plan for Armament Subsystem, Helicopter, 7.62mm, XM41," 28 March 1969.
- b. Letter, AMSTE-BG, Headquarters, US Army Test and Evaluation Command, 22 April 1969, subject: "Test Directive, Initial Production Test of Armament Subsystem, Helicopter, 7.62mm, XM41."
- c. Letter, AMSTE-BG, Headquarters, US Army Test and Evaluation Command, 13 June 1969, subject: "Amendment to Test Directive, Initial Production Test of Armament Subsystem, Helicopter, 7.62mm, XM41."
- d. Final Report of Test, US Army Test and Evaluation Command, subject: "Initial Production Test of Armament Subsystem, Helicopter, 7.62mm, XM41 (Quality Assurance)," January 1969.

2. BACKGROUND

- a. With the deployment of the CH-47() helicopter to Vietnam, an immediate need arose to provide a suppressive fire capability. The use of the M24 armament subsystem provided flank protection; however, the rear of the CH-47 was unprotected. The XM41 armament subsystem,

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featuring a pintle-mounted M60D machinegun, was designed to provide suppressive fire protection for the rear of the helicopter.

b. Aberdeen Proving Ground (APG), with the support of the United States Army Aviation Test Board (USAAVNTBD), performed the initial production test of the XM41 in July 1968 at Fort Rucker, Alabama. Because of a change in the XM41 prime contractor, United States Army Test and Evaluation Command (USATECOM) directed conduct of an initial production test of the new manufacturer's XM41 (ref 1b). The USAAVNTBD was directed to assist in the test. Later the test directive was amended (ref 1c) and the USAAVNTBD was assigned the responsibility for conducting and reporting those tests outlined in paragraphs 7 and 8 of the plan of test (ref 1a).

3. OBJECTIVE

To determine functional suitability.

4. SUMMARY OF RESULTS

a. Initial inspections of the weapon were conducted in accordance with paragraph 7, reference 1a, with results as follows:

(1) No deficiencies were noted.

(2) The belt pull of the M60D machinegun was 185 rounds. The cyclic rate was 592 shots per minute.

(3) The perpendicular clearance between the gun and helicopter was 17 inches left, 19 1/2 inches right, and 3 1/2 inches up. The clearance between the aim of the gun and the rotor blade with the rotor stopped was 30 inches. Equipment was not available to measure the clearance with the rotor at operational r.p.m. and zero lift; however, the clearance will be greater than the 30 inches with the rotor stopped.

(4) The average time required for the gunner to dismount and assume a firing position was 25 seconds.

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b. Aerial firing was completed in accordance with paragraph 8 and appendix II, reference 1a. Three stoppages were recorded -- two attributed to bad ammunition and one to the M60D for failure to extract spent brass (see para 5, discussion).

c. Inspection after firing 14,100 rounds of ammunition revealed no deficiencies.

d. During testing, the operating rod, FSN 1005-069-9351, was replaced after 9,500 rounds due to excessive wear and the retaining wire to quick release pin, FSN 5340-913-5486, broke. These are considered random failures.

e. One deficiency and four additional shortcomings were noted during this test (see incl 1). Equipment Performance Reports were submitted in each case.

5. DISCUSSION

During the first day of testing, 4,850 rounds of 7.62mm ammunition were fired. Twenty stoppages occurred -- one as a result of a ruptured cartridge and 19 as a result of failure to extract. Originally, it was thought that the stoppages were caused by the ejector bag allowing spent brass to bounce back into the gun. During the second and third days of firing, this situation could be recreated only once; and this was after firing approximately 8,500 rounds. Therefore, the initial stoppage was attributed to lack of gunner and assistant gunner training and/or faulty ammunition, and the first portion of the test was refired with three stoppages -- two due to faulty ammunition and one to failure to extract.

6. CONCLUSION

The XM41 armament subsystem is functionally suitable.

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7. RECOMMENDATION

The reported deficiency and shortcomings be corrected as soon as practical.

FOR THE PRESIDENT:

2 Incl

1. List of Deficiencies and Shortcomings
2. DD 1473


P. V. SCHUMAN
Captain, AGC
Adjutant

DEFICIENCY AND SHORTCOMINGS

1. DEFICIENCY

<u>Deficiency</u>	<u>Suggested Corrective Action</u>	<u>Remarks</u>
Repair parts were not furnished as outlined in appendix II of the test plan.	For future tests, furnish required spare parts.	EPR No. 1 submitted.

2. SHORTCOMINGS

<u>Shortcoming</u>	<u>Suggested Corrective Action</u>	<u>Remarks</u>
a. Required referenced documents were not received nor was the USAAVNTBD on the distribution lists.	Insure that all required material is sent to the test agency.	EPR No. 2 submitted.
b. The ejector bag was difficult to empty in flight. Also, brass and links fall inside the CH-47's ramp.	Redesign ejector bag.	EPR No. 3 submitted.
c. Design of ammunition can with one corner removed causes difficulties when ammunition is not supplied in cartons of 100 rounds each.	Eliminate removing lower corner of ammunition can.	EPR No. 4 submitted.
d. Safety harness is inadequate.	Replace with full torso harness with leg straps.	This was previously reported as a deficiency by APG (ref ld), but the USAAVNTBD

Shortcoming

Suggested
Corrective Action

Remarks

considers it a
shortcoming.
EPR No. 5 was
submitted.

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13. ABSTRACT The US Army Aviation Test Board conducted the initial-production test of the XM41 armament subsystem to determine its functional suitability. During June 1969, 14,100 rounds of ammunition were fired from the subsystem at Apalachicola Tactical Test Site, Florida. Inspection before and after firing revealed no deficiencies. Three stoppages occurred and two parts were replaced; however, two stoppages were caused by faulty ammunition. The part failures were considered random. One deficiency--failure to furnish spare parts with the test item--and four shortcomings were noted. It was concluded that the XM41 armament subsystem is functionally suitable and recommended that the deficiency and shortcomings be corrected as soon as practical.		

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INCLOSURE 2

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